

What is claimed is:

1. A radio base station apparatus comprising:

5 a first transmission signal formation section that forms dedicated channel signals directed to a plurality of communication terminals by spreading transmission data directed to each communication terminal using a spreading code assigned to said communication terminals; and

10 a second transmission signal formation section that forms transmission signals directed to said plurality of communication terminals by multiplexing control information directed to each communication terminal for each communication terminal to carry out uplink packet transmission using a dedicated channel based on a  
15 multiplexing rule preset between the base station apparatus and each communication terminal and spreading the control information using a spreading code common to said communication terminals.

20 2. The radio base station apparatus according to claim 1, wherein said second transmission signal formation section time-division multiplexes said control information directed to each communication terminal at a position predetermined between the base station  
25 apparatus and said communication terminals.

3. The radio base station apparatus according to claim 2, wherein said second transmission signal formation

section diverts a PICH (Page Indication Channel) data structure, assigns said control information to the bit of the paging indicator disposed through a PICH on a time-division basis and thereby time-division  
5 multiplexes said control signal directed to each communication terminal.

4. The radio base station apparatus according to claim 1, wherein said second transmission signal formation  
10 section assigns symbol patterns which vary from one communication terminal to another from among a plurality of symbol patterns, changes the polarities of the assigned symbol patterns according to the contents of the corresponding control signals to thereby multiplex said  
15 control information directed to each communication terminal.

5. The radio base station apparatus according to claim 4, wherein said second transmission signal formation  
20 section diverts an AICH (Acquisition Indication Channel) data structure and multiplexes said control information directed to each communication terminal using this AICH signature.

25 6. The radio base station apparatus according to claim 1, further comprising:

a first transmit power control section that controls transmit power of a dedicated channel signal formed by

said first transmission signal formation section for each dedicated channel; and

5 a second transmit power control section that controls transmit power of control information directed to each communication terminal multiplexed by said second transmission signal formation section in accordance with the transmit power of the corresponding dedicated channel.

10 7. The radio base station apparatus according to claim 1, wherein said second transmission signal formation section comprises a first spreading section that spreads first control information directed to said communication terminals using a first spreading code common to said communication terminals and a second spreading section  
15 that spreads second control information directed to said communication terminals using a second spreading code common to said communication terminals.

20 8. The radio base station apparatus according to claim 1, wherein said second transmission signal formation section divides a plurality of communication terminals carrying out said uplink packet transmission into at least two groups and comprises a first spreading section that  
25 spreads said control information directed to said first group communication terminals using a first spreading code common to the first group communication terminals and a second spreading section that spreads said control

information directed to said second group communication terminals using a second spreading code common to the second group communication terminals.

5 9. The radio base station apparatus according to claim 1, wherein said control information is information on the transmission rate of transmission packet data, coding rate, spreading factor, number of spreading codes, modulation scheme, packet data size, transmit power  
10 and/or information on retransmission.

10. A communication terminal apparatus comprising:  
a despreading section that despreads a signal received from a radio base station apparatus using a  
15 spreading code common in a cell;  
a channel decoding section that extracts control information directed to the own station from the control information directed to a plurality of communication terminals multiplexed in the despread signal based on  
20 a multiplexing rule preset between the communication terminal apparatus and said radio base station apparatus;  
and  
a transmission signal formation section that controls the transmission rate of transmission packet  
25 data, coding rate, spreading factor, number of spreading codes, modulation scheme, packet data size, transmit power or retransmission to form an uplink transmission packet based on said extracted control information.

11. A method for a radio base station to transmit control information to a plurality of communication terminals in a cell so that each communication terminal forms an uplink transmission packet signal using a dedicated channel, comprising the steps of:

presetting a multiplexing rule between the radio base station and each communication terminal;

the radio base station multiplexing said control information directed to a plurality of communication terminals according to said multiplexing rule, spreading the multiplexed control information using a spreading code common to the communication terminals and transmitting the control information by radio; and

said communication terminal despread a received signal using said common spreading code and extracting said control information directed to the own station from the despread signal according to said multiplexing rule.

12. A radio communication system comprising:

a radio base station apparatus that multiplexes control information directed to a plurality of communication terminals according to a multiplexing rule preset between the base station apparatus and the plurality of communication terminals, spreads the multiplexed control information using a spreading code common to the communication terminals and transmits the spread control information by radio; and

communication terminal apparatuses that despread  
the received signal using said common spreading code,  
extract said control information directed to the own  
station from the despread signal according to said  
5 multiplexing rule and form an uplink packet signal to  
be transmitted based on the extracted control information  
using a dedicated channel.

13. The radio communication system according to claim  
10 12, wherein said multiplexing rule is set for said radio  
base station apparatus and said communication terminal  
apparatuses according to signaling from a higher level  
apparatus.